

ABSTRACT

There is provided a novel thermal barrier coating material which does not have a problem of phase transition, whose melting point is higher than its working temperature range, whose thermal conductivity is smaller than that of zirconia, and whose thermal expansion coefficient is greater than that of zirconia. The thermal barrier coating material comprises as a main component, a composition having an orthorhombic or monoclinic structure derived from perovskite (for example, a tabular perovskite structure expressed by the composition formula $A_2B_2O_7$), or a tetragonal layer structure having a c axis / a axis ratio equal to or greater than 3 (for example, a K_2NiF_4 structure, a $Sr_3Ti_2O_7$ structure, or a $Sr_4Ti_3O_{10}$ structure), a composition expressed by the composition formula $LaTaO_4$, or a composition having an olivine type structure expressed by the composition formula M_2SiO_4 or $(MM')_2SiO_4$ (where M, M' are divalent metal elements).